

WHITE PAPER



Commercial Real Estate Group Of Tucson LLC
Our Difference is Your Advantage

The Bio Industry in Tucson, Arizona

Second Edition December 2015

A White Paper that answers “Absolutely Yes!” to the question....
Is Tucson, Arizona a Great Place for Bio Companies?

Planning a Biotech or Bioscience Start-Up?

Exploring relocating or expanding to a city where your Bio company can thrive?

How about Tucson, where the sun shines more than 350 days a year and the business climate promotes successful entrepreneurship?



This White Paper explores what factors are important and need to be present in a city for a Bioscience company to be successful. It then provides ample support for the belief that Tucson, Arizona should top the short list.

This White Paper published by Commercial Real Estate Group of Tucson, LLC. Contact Michael Coretz, your Tucson commercial real estate partner, for more information.



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A White Paper that answers the question with... **Absolutely YES!**

Introduction

- ▶ When companies are looking for a home for their new bioscience business start-up, relocation or expansion, Tucson, Arizona ought to be the first city that springs to mind. Why?

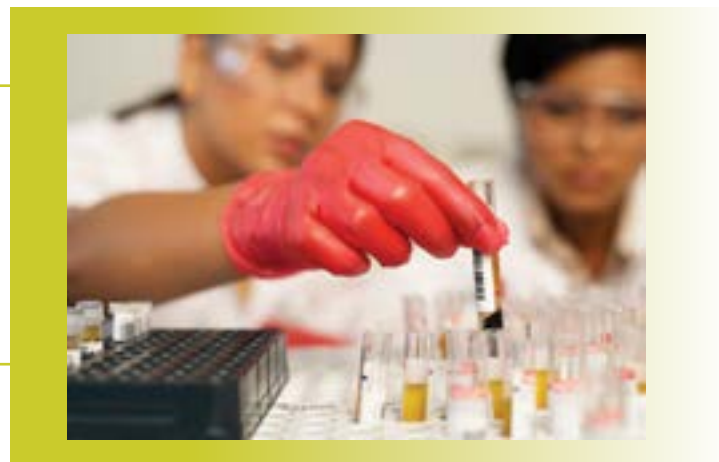
Because Tucson is growing beyond its old reputation as merely a place for companies in the tourism industry or catering to the students and faculty at the University of Arizona. People may even think its only claim to fame is hot weather. Not so! Tucson boasts many advantages for new and growing companies in almost any industry. In fact, right now Tucson is considered a HOT spot for the Bio Industry.

The purpose of this white paper is to provide a clear and persuasive argument for anyone considering a bio start-up or planning an expansion to make sure that Tucson is on the “short list” of potential cities. It should remove any doubt that Tucson is not only a great location for a bio company to call home, but that the city welcomes companies involved in the entire Bio Industry.

- ▶ **Biotechnology** is in a relatively nascent stage compared with many other industries and there are numerous opportunities for new applications and inventions. There is great potential, from human health technologies to industrial technologies and anything in between. Industry experts predict impressive growth as

- the diversity and span of product lines continue to increase with the aid of new technology
- processes and infrastructure are honed
- products for commercialization continue to emerge.

According to IBISWorld Industry Reports, the U.S. Biotechnology Industry is anticipated to continue to grow at an average annual rate of 8.7% to reach almost \$165 billion by 2020.





Necessary Factors in the Development of a Biotechnology Presence

A number of development factors have been identified as advantageous to companies in the Bio Industry. Tucson, Arizona boasts an impressive set of check marks when set against these factors.

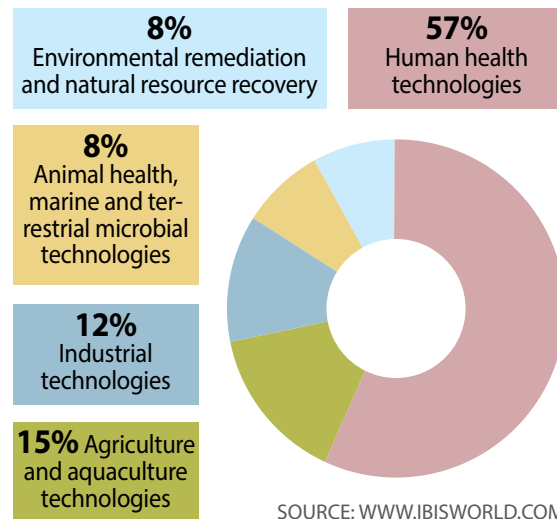
WHAT'S NEEDED FOR SUCCESS IN BIOTECH	TUCSON, AZ
Availability of Venture Capital and Local Entrepreneurship	✓
Availability of Federal and State Government Funding	✓
Strong Research Presence (University and Government Agencies)	✓
Proximity to Large Private Enterprises in Related Industries	✓
Presence of Highly Skilled Personnel –Often Provided by Universities	✓

A Biotechnology Brief

The major segments of the \$108.7 billion industry show that there is great diversity in the types of products that are produced.

Over 50% of the industry is focused on human health technologies and this segment will become even more important as the population ages. In addition, other established sectors that focus on the environment, agriculture and industrial technologies have much potential for growth.

Products and services segmentation (2015) Total \$108.7bn



"The biosciences are improving the quality of life in Arizona."

...The Flinn Foundation



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A Mandate for Development of the Bio Industry

- President Barack Obama's announcement of a \$5 billion award through the National Institutes of Health (NIH) to aid research in a range of diseases is one reason for optimism in the Bio Industry.
- Through this program, federal grants will speed development of advanced treatments for diseases and create jobs through 2018.

Going Green Spurs Bio Industry Growth

- Several environmental factors will drive industry growth, including
 - the decreasing use of fossil fuel-based products
 - the ever-growing need for geopolitical security and national energy security
 - the call for environmental sustainability
 - ongoing innovation in ethanol production to improve options in the ever-increasingly arid climate
 - rapid population growth.

Bio Industry Needs are Highly Specialized

There are significant differences between creating a state-of-the-art biotech building versus moving into more traditional office or laboratory settings. Even if you're moving into an established building, there are certain parameters that need to be met that many real estate professionals or architects aren't always aware of.

- Bio Industry work places often require the flexibility to change and adapt to a company's growth and additional personnel. It's well known that the funding for the Bio Industry is sometimes unpredictable and that these companies often depend on short-term government grants or private funding. Having flexible workspace configuration and overall space are key to successfully adapting to changing financial conditions.
- Specialized infrastructure is a crucial consideration. As companies grow, there might be need for more lab space or other specialized areas where scientists can work. Additional issues not often seen in other industries include complex ventilation and plumbing systems, waste management and hazardous materials facilities, unusual energy requirements and sound- and vibration-proof facilities. Even the height of the ceilings can be of great importance to some of these companies.
- A collaborative work space or an impressive high-tech building exterior also may be important to a team of scientists and business development staff in order to attract both talent and funding.
- Appropriate locations for Bio Industry companies put them in close proximity to other intellectual resources and other "biotech-research players," such as universities.

Often a group of professionals from different disciplines act as the development team. Ranging from scientists, architects, engineers and financiers to building contractors and commercial real estate brokers, the team must understand the special needs of the Bio Industry and help anticipate each tenant's future space needs.





Why Tucson?

Comparing factors required for successful bio companies to a city's ability to meet those requirements, it's easy to see why Tucson, Arizona should be included in any start-up or growth plan in the industry.

- In fewer than a dozen years Tucson has put itself on the Bioscience Industry map.
- Tucson has more than 100 bioscience companies generating \$6 billion in annual revenues.
- Companies range from small start-ups to global leaders.
- *Business Facilities Magazine* named Tucson a "rising biotechnology star" just a few years ago and Arizona was cited among the top emerging biotech "hot spots." *Forbes Magazine* also ranked Tucson as "one of the top 20 most innovative cities."

Tucson: a "rising biotechnology star"
 ...The Flinn Foundation



Location. Location. Location

Yes, Tucson, although in a desert, is certainly no desert island!

Tucson is strategically positioned for Bio Industry success. It's part of the nation's thriving bio cluster that fosters collaboration. As a significant Southwestern U.S. hub, Tucson is well positioned for logistics and transportation of material and end product.

Its proximity to Mexico, just an hour away, helps address manufacturing and supply needs.



Business Development and Support

- The Bioindustry Organization of Southern Arizona (BIO SA) is a trade group of companies, institutions and individuals who work to facilitate connections for Bio Industry success as a crucial economic driver in Tucson.
- Bioscience Leadership Council of Southern Arizona works to develop the area's Bio Industry by nurturing funding sources, helping build a talent base and developing a supportive business climate.



Availability of Venture Capital and Local Entrepreneurship

- The Tucson Desert Angels funding group has invested over \$36 million in more than 85 presenting companies since 2005.
- *Bloomberg Business Week* explains "Why is Angel Investing Hot in Tucson?", July 2013.
- Tucson is called an "Emerging Entrepreneurial Hub" by *Entrepreneur Magazine*, August 2013.
- *Chief Executive Magazine* ranks Arizona "#6 Best State for Business", May 2013.
- Silicon Valley Bank has a track record in helping Arizona biotech companies and has committed to lending at least \$100 million to technology and life-science companies based in Arizona through 2019.
- Bioscience Venture Capital has invested \$463 million in the state of Arizona, according to the Flinn Foundation.





Availability of Federal and State Government Funding

- SBIR (Small Business Innovation Research) grants have been awarded to many Tucson-based companies.
- ACA (Arizona Commerce Authority) provides numerous funding opportunities in the form of grants and loans, including the Arizona Innovation Challenge, Venture Madness and AZ Fast Grants. In order to encourage Arizona businesses to continue investing in R&D activities, there also are tax credit incentives available through the ACA. National Institutes of Health (NIH) funds Arizona ventures to the tune of \$182 million with over \$21.6 million going to The University of Arizona Cancer Center alone.



Strong Research Presence (University and Government Agencies)

- National Science Foundation ranked The University of Arizona #19 among all public universities for research and development (R&D) expenditures.
- The University of Arizona has spun out almost 30 bio companies in the last 10 years based on their own intellectual property (IP). Dozens more have been launched by University of Arizona researchers and students with their own IP.
- AZCI (Arizona Center for Innovation), a tech business incubator, provides facilities and lab space for early-stage ventures.
- Tech Launch Arizona helps University faculty commercialize their inventions.
- The Bio5 Institute, a renowned University of Arizona-affiliated unit, helps to “harness the collaborative power” of its five core disciplines—agriculture, engineering, medicine, pharmacy and science—to “find solutions to complex, biology-based challenges affecting health and environment.”



Proximity to Large Private Enterprises in Related Industries

- C-Path (Critical Path Institute), a partnership among the University of Arizona, SRI International and the Federal Drug Administration, is headquartered in Tucson and helps to accelerate the drug development and regulatory process for medical products.
- Many private companies ranging from engineering to manufacturing firms are ready to partner and collaborate.
- The Arizona-based Flinn Foundation reports that the Biosciences Industry in Arizona generates over \$30 billion in economic activity. In the last decade, Arizona has exceeded U.S. averages in three key metrics:
 - the number of bioscience firms
 - the number of private sector bioscience jobs
 - average bioscience wages.

“Southern Arizona is home to a vibrant and unique life sciences sector. The presence of large international pharmaceuticals, along with mid-sized and start-up companies, is complemented by non-profit and academic institutions to create an uncommonly diverse and synergistic biotech community.”

... Nina Ossanna, Ph.D., chair, BIOSA, & President, Sonora Bio Consulting





To Prove Our Point – Tucson Bioscience Companies

A large number of Bio Industry companies already know that Tucson has what it takes for them to be successful. From the northwest side of Tucson in Oro Valley south through the city to the Tucson International Airport, there exist clusters of bio companies. Some who distribute and ship products have chosen convenient and affordable real estate in the Palo Verde/Airport corridor. When we talk about Tucson's bioscience community, two prominent companies, two of the world's largest pharmaceutical companies, top the list: Ventana Medical Systems, Inc. and Sanofi.



Ventana Medical Systems, Inc./Ventana Roche. ventana.com

Ventana, as the locals call it, is a division of the Roche Group and is truly a local success story. Launched in 1987 by Dr. Thomas Grogan, a University of Arizona professor and practicing pathologist, the company is a world leader and innovator of tissue-based diagnostic solutions for patients worldwide. In 2008, Ventana became a wholly owned member of the Roche Group and now boasts over 1,200 full-time employees, products registered in 92 countries, almost 400 worldwide patents and over 400 pending patents. The company continues to expand and in early 2015 it broke ground just north of Tucson for a new storage, distribution and assembly point for its cancer diagnostic instrument segment.



Sanofi. sanofi.us

Sanofi, a diversified global healthcare leader, discovers, develops and distributes therapeutic solutions. The world's third largest pharmaceutical company makes Tucson its home in a 110,350-square-foot facility in Innovation Park next to Ventana Medical Systems' campus.

BioScience Corridor

Ventana and Sanofi operate out of Innovation Park in the Tucson suburb of Oro Valley. This high-tech center features a variety of medical and biotech company campuses in what has come to be called the BioScience Corridor. It's a location that allows the companies and their employees to benefit from all that Tucson has to offer. The town does not levy a local property tax, commercial property is assessed at 25% of fair market value and residential property is assessed at 10% of fair market value.

In addition to these two local success stories, Tucson is also home to other bio companies in various stages of development. What follows is just a short list to show the diversity of products and services that exist in the community.



Accelerate Diagnostics. acceleratediagnostics.com

Accelerate is an in vitro diagnostic company that moved from Denver, Colorado to Tucson in 2012 under its original name, Accelr8. In August 2013, the company announced it had raised \$20 million in funding.

"Although remaining in Colorado was our first choice, after a careful and deliberate process, the decision to move to Arizona became clear. I was impressed from my first contacts with Pima County, the Tucson Mayor's Office, the state of Arizona and the Tucson Regional Economic Opportunities office. We could tell this was a place that valued our businesses and wanted to help."

... Lawrence Mehren, President and CEO, Accelr8





Calimmune Inc. calimmune.com

Founded in 2006 by a University of Arizona alumnus, this company currently is in clinical trials with a gene-based drug designed to both control HIV infection and to protect HIV-infected people from progressing to AIDS. In 2013, the Tucson-based venture won an \$8.3 million grant from the California Institute for Regenerative Medicine to help further its work. In early 2015 it raised \$15 million in new investment capital to fund the company's ongoing HIV/AIDS drug trials, advanced research and operations.



HTG Molecular. htgmolecular.com

In May 2015, HTG announced that it had completed an initial public offering, receiving net proceeds of \$44.2 million. The company provides an innovative technology platform allowing for multiple precise, efficient molecular profiling applications, including tumor profiling, molecular diagnostic testing and biomarker development.



LCMS Solutions. lcmssolutions.com

This recent entrant to Tucson operates a CLIA-certified high-complexity testing lab and serves health care providers, drug development/pharmaceutical companies and researchers. LCMS Laboratories here in Tucson, and its sister corporation in California, LMS Solutions, utilize tandem mass spectrometry (LCMS/MS) technology to provide extremely accurate measurements very quickly.



NuvOx Pharma. nuvoxpharma.com

Founded in 2008, this company has developed breakthrough nanotechnology that can infuse tumors with oxygen so they become more susceptible to radiation therapy. In addition to receiving a \$1 million grant from the National Cancer Institute, NuvOx Pharma also received a \$250,000 award in the 2014 Arizona Innovation Challenge, an Arizona Commerce Authority competition that assists technology ventures whose innovations have potential global impacts.

"The Tucson community demonstrated a cohesiveness and support that we've never experienced before. State and local government agencies, business development groups and local businesses made our start-up in mid-2015 a wonderful experience. We have been very pleasantly surprised by the concentration and accessibility of world-renowned scientists in the diagnostic community."

... Mike Berghold, CFO & VP Business Development, LCMS Solutions

"The link with the University of Arizona is a key part of our success and the quality of life and cost of living in the Grand Canyon State are also factors in the mushrooming bioscience sector."

..Dr. Evan Unger, co-founder, CEO & president, NuvOx Pharma





Salutaris Medical Devices, Inc. salutarismd.com

Founded in 2008, this is a privately held clinical-stage medical device company dedicated to developing minimally invasive patient-centric treatments for vision loss.



SynCardia Systems syncardia.com

One of Tucson's more famous success stories was founded in 2001 as a University of Arizona spinoff. This privately-held company is the manufacturer of the world's first and only FDA-, Health Canada- and CE (Europe)-approved total artificial heart. In March 2011, *Fast Company* magazine ranked SynCardia #20 in its annual list of the "World's 50 Most Innovative Companies" for "giving mobility to artificial heart recipients." In November 2015, SynCardia announced that it hired an investment bank to advise the Board of Directors on options to maximize stakeholder equity.

Conclusion

This paper has identified a number of factors that must be present in a city for Bio companies to thrive.

Tucson, Arizona rates high on these factors. There are many community leaders, stakeholders and local professionals who are eager to help new or established companies in the Bio Industry who want to make Tucson their new home. As this paper details, many companies are already doing just that.

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Resources, Associations & Publications

Arizona Technology Council. www.aztechcouncil.org

Bio5 Institute. www.bio5.org

BIOSA, Bio Association of Southern Arizona. www.biosaz.org

Bioscience Road Map. www.flinn.org/bio-roadmap

BLCSA, Biosciences Leadership Council of Southern Arizona. www.salc.org

C-Path, Critical Path Institute. www.c-path.org

The Flinn Foundation. www.flinn.org.

TechLaunch Arizona. www.tla.arizona.edu

TechConnect, Arizona's Technology Magazine. www.azcommerce.com/tech-connect/bioscience-health

TuScience: Spotlight on Bioscience. Sun Corridor, Inc. www.suncorridorinc.com

The University of Arizona. www.arizona.edu

Entrepreneur Magazine Names Tucson as an Emerging Entrepreneurial Hub

www.flinn.org/tucson-named-emerging-entrepreneurial-hub/

"Biotech Real Estate Needs are Highly Specialized"

www.bizjournals.com/seattle/stories/2003/09/29/focus12.html?page=all

"Why is Angel Investing Hot in Tucson?"

www.businessweek.com/articles/2013-07-22/why-is-angel-investing-hot-in-tucson

"Tucson Biotechnology Firm Determined to Wipe Out Radiation-Resistant Tumors"

www.azcommerce.com/tech-connect/bioscience-health/2015/7/6/nuvoxpharma

Biotechnology Industry in the US. IBIS World Industry Reports. June 2015

www.ibisworld.com

Arizona's Bioscience Roadmap: 2014 Progress of the Biosciences in Arizona. Flinn Foundation.

www.flinn.org/wp-content/uploads/2015/03/2014-Progress-of-the-Biosciences-in-Arizona.pdf

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